

PREPARED FOR:

PREPARED BY:

**TWIN CREEKS
SPECIAL SERVICE DISTRICT**



WATER CONSERVATION PLAN

NOVEMBER 2022

WATER CONSERVATION PLAN

November 2022

Prepared for:

***TWIN CREEKS
SPECIAL SERVICE DISTRICT***

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WATER CONSERVATION PLAN

INTRODUCTION

Attitudes toward water supplies are changing. Water is no longer seen as a boundless resource, but as a valuable commodity that needs to be managed carefully. With this shift in attitude, conservation is becoming a larger part of water suppliers' plans to meet future water needs. For Twin Creeks Special Service District, water conservation means increasing the efficiency of water use in order to sustain and optimize future water supplies to its customers. With this in mind, Twin Creek SSD has adopted water conservation as a key element in its long-term master plan to serve its customers.

Many water suppliers throughout the country have adopted conservation programs. Benefits experienced as a result of these programs include:

- Using existing water supplies more efficiently.
- Maximizing utilization of existing water conveyance, treatment and distribution facilities
- Delaying or deferring expensive construction of capital improvement projects
- Reducing the need for additional water supplies.

Officials at the State of Utah Department of Water Resources recognize the potential of conservation programs to extend current water supplies. They have established region-wide conservation goals, which groups counties within Utah with similar water usage. Wasatch County falls into the Provo River region.

Twin Creeks SSD recognizes the potential benefits of conservation efforts, which ultimately will reduce costs to individual customers. Since sustained additional water conservation will be an important component in Twin Creeks SSD's plans for future water use, this report will evaluate current conservation efforts within the District and will discuss additional measures that will allow Twin Creeks to conserve water.

HISTORY AND CURRENT POPULATION

Established in 1994, Twin Creeks Special Service District was developed to provide sewer, culinary, and secondary water services to developments east of Heber City from approximately Mill Road to 6360 East (see Figure 1). TCSSD has seen substantial growth over the last 27 years, increasing from approximately 204 equivalent residential units (ERUs) in 2000 to 1,244 ERUs in 2021, with much more room for growth remaining in the District. The District provides sewer and culinary water services to all ERUs in its service area, while the TCSSD secondary service area is limited to smaller sections as illustrated in Figure 1. These service areas are detailed further in the following section.

The historic and projected culinary and secondary ERUs in Twin Creeks SSD (with associated population estimates) are identified in Table 1. Projections shown in the table have been taken from the District's 2018 Water Master Plan developed by Bowen Collins & Associates (BC&A).

**Table 1
Historic and Projected TCSSD Culinary and Secondary Equivalent Residential Units**

Year	Culinary		Secondary**	
	Equivalent Residential Units	Approximate Total Population*	Equivalent Residential Units	Approximate Total Population*
2015	811	2,538	284	888
2018	1073	3,358	335	1,050
2020	1194	3,737	343	1,074
2025	2,173	6,801	406	1,270
2030	3039	9,514	479.4	1,501
2035	3,529	11,047	541	1,695
2040	4193	13,124	596.9	1,868
2045	4602	14,404	648.6	2,030
2050	5192	16,250	692.6	2,168
2055	5388	16,864	727.2	2,276
2060	5761	18,031	752.9	2,356

*Assumed 3.13 people per house (value on record for 2020 census for Wasatch County)

** Secondary ERU projections were estimated assuming 10% of new culinary ECU's also have secondary ECUs installed from 2025 onward.

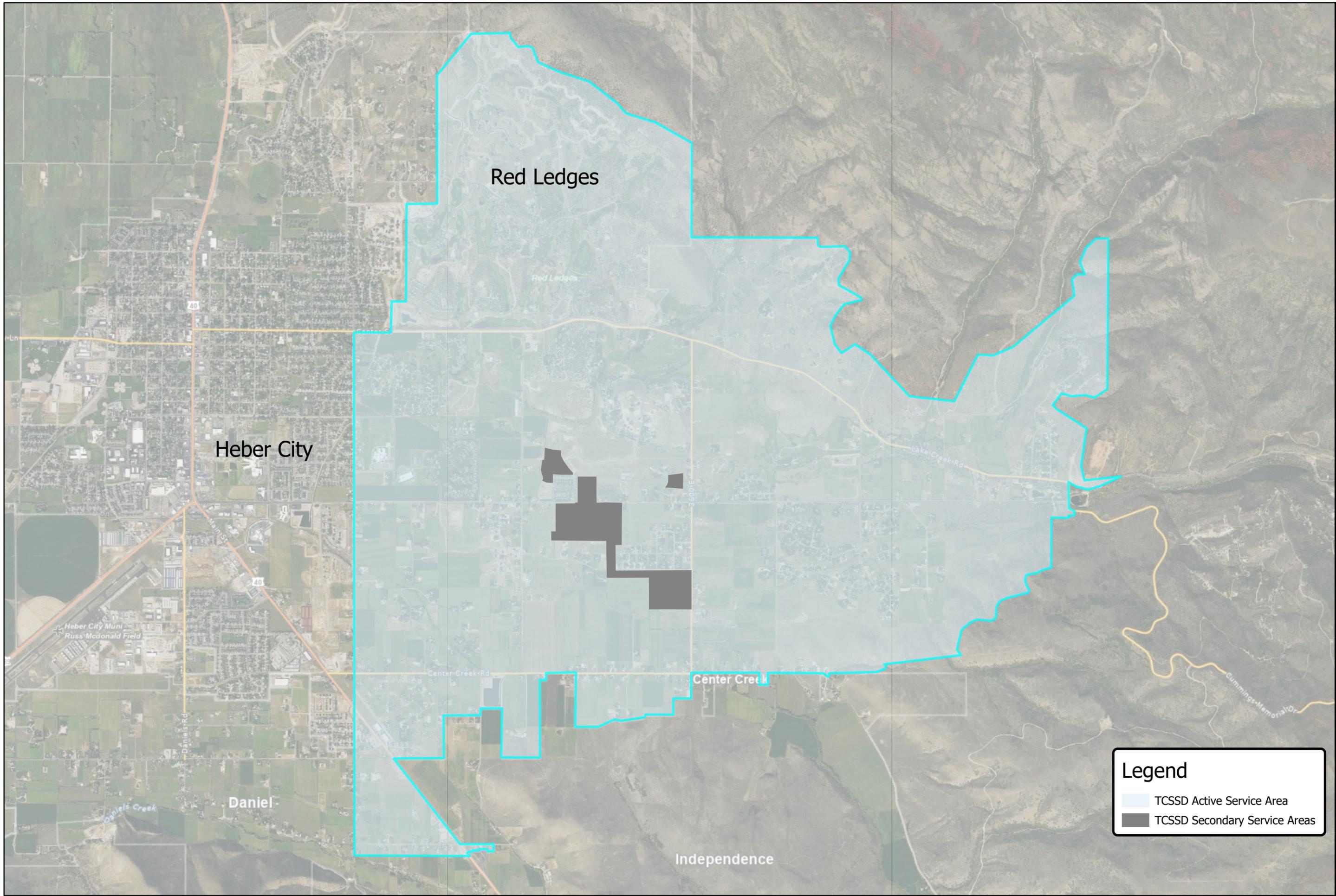
SERVICE AREA

The District’s active service area boundary is shown in Figure 1. The District’s statutory boundary (not shown) is significantly larger, but the District does not provide water service to the entirety of its official statutory boundary due to the existence of separate water providers that surround the District’s system. Nearby areas not served by the District include the LDS Church Camp and Land, the Timber Lakes Development, and the Center Creek Water Company service area. These excluded areas are not currently planned to be served by TCSSD water systems in the future.

EXISTING WATER USERS

TCSSD currently has 1,244 metered culinary water service connections (1,236 ERUs), primarily providing indoor culinary water service to residential customers, an elementary school, and a junior high school. TCSSD supplies water for outdoor use in the Red Ledges Development via its culinary system. Red Ledges and the upper few lots in Big Pole Estates are the only areas of the system without access to a secondary water system. Given that culinary water is only used for outdoor irrigation in limited areas, the 2021 culinary usage per capita was relatively low at approximately 73.1 gpcd based on a population of 4,035.

TCSSD also provides secondary water to approximately 340 residential connections in Twin Creek as illustrated in Figure 1. Other land parcels are serviced by alternative secondary water providers.



Legend

- TCSSD Active Service Area
- TCSSD Secondary Service Areas

NORTH:

SCALE: 1,400 Feet

TWIN CREEKS SSD
**TWIN CREEK SSD
 CONSERVATION PLAN**

**TCSSD ACTIVE
 SERVICE AREAS**

**BOWEN COLLINS
 & ASSOCIATES**

FIGURE NO.
1

P:\Twin Creeks SSD\256-17-01-23 TCSSD Water Conservation Plan 2022\4.0 GIS\4.4 APR\TCSSD_ServiceAreas.aprx |plotted: 7/15/2022

The historical data for water use in the TCSSD secondary service areas is extremely limited, as implementation of universal secondary metering was not completed until 2021. For that year, the average daily demand per secondary ERU was 1,191 gallons, which is 342 gpcd based on a service population of approximately 1,180.

As conservation goals in this plan are set for all TCSSD water use, the remainder of this plan distinguishes use based on supply source (i.e., culinary or secondary) rather than usage type (i.e., indoor or outdoor irrigation). Understanding that culinary water is used for Red Ledges outdoor irrigation is important to understand culinary usage trends but will not be a focus of this conservation plan.

WATER METERING AND PRICING

To encourage conservation, TCSSD has implemented an increasing block water rate structure for both culinary and secondary water as shown in Tables 2 and 3, respectively.

Culinary Water Rate Structure

**Table 2
Culinary TCSSD Current Rate Structure**

Monthly Base Rate (\$/month) - Includes first 12,000 gallons per month					
Metered Connections by Meter Size (inch)	2019	2020	2021	2022	2023
1 and Smaller	\$67.67	\$69.99	\$72.44	\$74.98	\$77.23
1 1/2	\$131.46	\$136.06	\$140.82	\$145.75	\$150.12
2	\$208.05	\$215.33	\$222.86	\$230.66	\$237.58
3	\$386.74	\$400.27	\$414.28	\$428.78	\$441.65
4	\$642.02	\$664.49	\$687.75	\$711.82	\$733.17
Standby Fee Per ERU	\$25.88	\$26.78	\$27.72	\$28.69	\$29.55
Overage Volume Rate (\$/1,000 gallons per month for use greater than 12,000 gallons)					
Metered Connection by Rate Schedule	2019	2020	2021	2022	2023
Regular Rate Schedule 102	\$6.11	\$16.68	\$17.26	\$17.87	\$18.40
Special Rate Schedules 103 and 104	\$4.56	\$4.72	\$4.89	\$5.06	\$5.21

Note: Rate schedule 101 is not included in this table because it is the water Standby Fee and is not calculated or assessed with typical user rates

All culinary Block 1 water is currently included in the monthly base rate allowance (the first 12,000 gallons of water used per connection). However, the price of this water is about 275% than the Overage Volume rate for water above 12,000 gallons per month. At more than \$17.00 per thousand gallons, the charge for Block 2 water is very aggressive when compared to other water rates in Utah and provides a significant incentive for conservation.

Secondary Water Rate Structure

Table 3
Secondary TCSSD Current Rate Structure

Rate Component	2020	2021	2022	2023	2024
Base Rate Per Month - Metered Connections	\$8.24	\$8.28	\$8.32	\$8.36	\$8.40
Tier 1 Volume Charge (0 - 50 kGal per Month)	\$0.24	\$0.24	\$0.24	\$0.24	\$0.24
Tier 2 Volume Charge (50-90 kGal per Month)	\$0.65	\$0.65	\$0.65	\$0.65	\$0.65
Tier 3 Volume Charge (90-250 kGal per Month)	\$1.33	\$1.34	\$1.35	\$1.36	\$1.37
Tier 4 Volume Charge (>250 kGal per Month)	\$2.00	\$2.01	\$2.02	\$2.03	\$2.04
Separate Assessment Credit per Month	-\$2.22	-\$2.29	-\$2.36	-\$2.43	-\$2.50
Standby Charge Per Month	\$6.67	\$6.70	\$6.73	\$6.76	\$6.79

IBU = Irrigation Billing Unit

All rate components shown above are on a "per IBU" basis.

The standby charge is the charge for customers that have turned in water but have not yet connected to the system. Separate Assessment Credit is only available to those IBU's grandfathered in to the arrangement where the customer pays his own water assessments to the irrigation company and the District delivers his water. See Designing the Rate Structure, above.

Secondary water is also billed in a block structure to encourage conservation when irrigating. The secondary water rate structure includes a base rate charge, with an additional four tiers of charges based on increased volume usage. Water rates also increase in each tier to encourage conservation, with the cost per thousand gallons increasing by 750% between the first 50 thousand gallons and use greater than 250 thousand gallons.

EXISTING WATER SUPPLY

The WTP owned and operated by TCSSD currently has a treatment capacity of 694 gpm (1.0 MGD). Running at full capacity for the entire year, this will produce 1,120 acre-feet per year. The District also has a contract for wholesale culinary water with JSSD for 900 acre-ft per year. Billy Bethers Spring was connected to the TCSSD culinary water system in 2019 to serve 24 resident connections. The spring can produce as much as 15 gpm, but has a reliable capacity of 7 gpm, which totals to 11.3 acre-ft per year. Table 4 summarizes the reliable yield from TCSSD culinary sources based on production capacity of its existing facilities. A description of planned future supplies can be found in the 2022 Master Plan.

Table 4
Summary of Existing and Future Culinary Water Supplies

Source	Reliable Annual Yield
WTP Sourced from Lake Creek and Big Pole Creek	Existing Plant Capacity – 1,120 acre-ft
JSSD Wholesale Contract	900 acre-ft per current contract JSSD ready to increase contract amount for future demands.
Billy Bethers Spring	Constant low flow: 11.3 acre-ft Maximum yield limited by spring production, which varies between 7 and 15 gpm
Total Projected	2,031.3 acre-ft

TCSSD owns shares in LCIC, allowing them access to an annual secondary water supply. LCIC also provides direct secondary water services to residents of Twin Creeks. Only those secondary connections serviced by TCSSD are included in this report as usage data for secondary users directly serviced by LCIC should be found in that company’s conservation plan. With the existing access to water shares for irrigation, and ability to purchase additional shares or contracts with LCIC, it is assumed that TCSSD has a reliable access to secondary water that is sufficient for the needs of its secondary customers.

PROJECTED WATER SUPPLY AND DEMAND

To adequately represent the implications of the District’s water conservation goals (detailed in a subsequent section), a comparison of projected demands and available supplies must be made. Tables 5 and 6 show the projected water demand for the District with conservation and the projected demand if no conservation occurs. Table 5 provides this information for the culinary system, while Table 6 provides this information for the secondary system.

Table 5
TCSSD Projected Culinary Demand With & Without Conservation

Year	Approximate Total Population	Annual Demand without Conservation (acre-ft)	Annual Demand with Conservation (acre-ft)	Estimated Annual Water Savings Through Conservation (acre-ft)	Estimated New Supply Development Which Can Be Delayed Through Conservation* (acre-ft)
2015	1,939	146	146	0	0
2020	4,230	318	310	9	0
2025	7,549	568	538	31	0
2030	11,805	889	820	69	0
2035	17,224	1,296	1,168	128	0
2040	21,348	1,607	1,417	190	0
2045	23,746	1,787	1,546	242	0
2050	25,171	1,895	1,610	284	0
2055	26,254	1,976	1,655	322	0
2060	27,056	2,037	1,684	353	5
2065	27,623	2,079	1,702	377	48

*Beyond the District's current estimated culinary supply of 2,031.3 acre-ft

Table 6
TCSSD Projected Secondary Demand With & Without Conservation

Year	Approximate Total Population	Annual Demand without Conservation (acre-ft)	Annual Demand with Conservation (acre-ft)	Estimated Annual Water Savings Through Conservation (acre-ft)
2015	690	281	281	0
2020	1,074	437	417	20
2025	1,270	517	443	74
2030	1,501	611	475	136
2035	1,695	690	511	184
2040	1,868	760	534	228
2045	2,030	826	550	272
2050	2,168	882	579	300
2055	2,276	926	605	320
2060	2,356	959	627	334
2065	2,413	982	643	339

Included in Table 5 is a comparison of projected culinary demands against the existing available water supply of 2,031 acre-ft. This illustrates the savings that conserving water gives to the District and community by delaying or eliminating the need for additional water supply and distribution system improvements in the future. As water for the secondary system is provided contractually, a similar comparison to available supply is not included, but the total volume of water saved through conservation is calculated.

The information from Tables 5 and 6 is represented graphically below in Figures 2 and 3 which shows that if Twin Creek is able to achieve and maintain their conservation goals by 2025, they will have sufficient annual source capacity through the year 2065. However, if water use continues at the current rate, the district will need additional culinary water sources before 2060.

Figure 3 does not include source volume information, because acquiring additional secondary water systems does not require the level of planning for infrastructure and treatment required to meet culinary demands. Additionally, the District's service area not developed already has water rights for irrigation that will be used when additional development occurs.

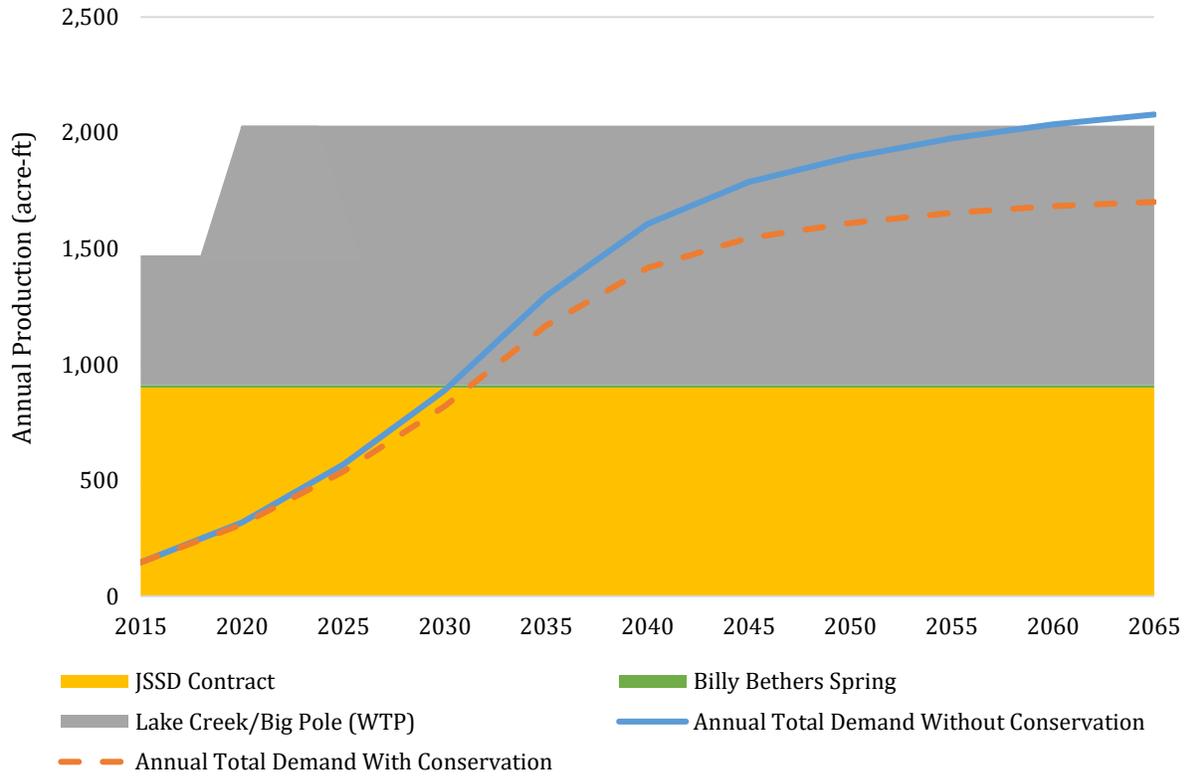


Figure 2. Projected Annual Culinary Production Requirements

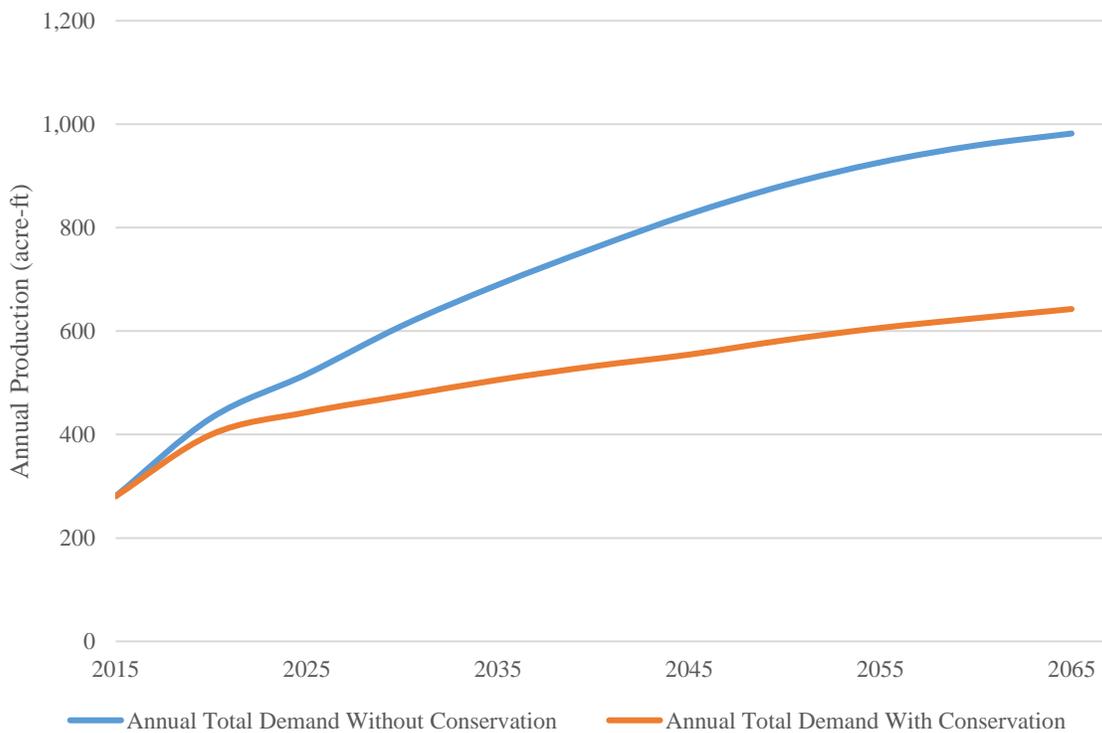


Figure 3. Projected Annual Secondary Production Requirements

TOTAL WATER PRODUCTION

Culinary water supplied to customers in the District comes from three sources, Billy Bethers Spring, the Twin Creeks Water Treatment Plant (WTP) and wholesale water purchased from Jordanelle Special Service District (JSSD). The water supplied from these three sources is shown in Table 7 below.

Secondary water for TCSSD irrigation customers is purchased from Lake Creek Irrigation Company (LCIC) and Timpanogos Irrigation Company (TIC). The volumes purchased each month for 2021 are detailed in Table 8 and follow an expected trend of higher volumes during summer months and lower or no demand in the spring, fall, and winter months. Note that these volumes are reported as water deliveries because TCSSD purchases their secondary supplies and therefore does not have access to secondary production data.

Water Production Versus Water Sales

Water production data are valuable in understanding source capacity and system performance and losses. Water sales are also valuable data to understand real usage trends for a population or area. Because this plan is focused on conservation goals measured in daily per capita use, calculations in this plan used for conservation goals have been performed using water sales data.

Table 7
TCSSD Culinary Water Production Volumes

Month	2015 (MG)	2016 (MG)	2017 (MG)	2018 (MG)	2019 (MG)	2020 (MG)	2021 (MG)
Billy Bethers Spring*							
January	--	--	--	--	--	0.19	0.18
February	--	--	--	--	--	0.18	0.16
March	--	--	--	--	--	0.21	0.19
April	--	--	--	--	--	0.23	0.22
May	--	--	--	--	--	0.24	0.22
June	--	--	--	--	--	0.26	0.21
July	--	--	--	--	--	0.21	0.21
August	--	--	--	--	--	0.24	0.19
September	--	--	--	--	--	0.18	0.19
October	--	--	--	--	--	0.20	0.20
November	--	--	--	--	--	0.19	0.21
December	--	--	--	--	--	0.18	0.21
Average	NA	NA	NA	NA	NA	0.21	0.20
Total	NA	NA	NA	NA	NA	2.51	2.38
TCSSD Water Treatment Plant Production**							
January	0.00	4.98	4.82	5.54	5.28	4.72	4.47
February	0.00	4.59	3.94	4.80	4.54	5.79	4.13
March	0.00	4.84	4.84	6.11	4.85	5.45	4.57
April	0.00	6.22	4.33	5.63	5.29	4.63	4.55
May	0.00	6.66	5.85	6.21	5.50	6.49	6.48
June	0.00	7.04	5.63	5.98	6.27	5.87	6.59
July	0.00	6.67	6.90	6.73	6.90	8.74	6.03
August	0.00	5.72	6.25	5.54	6.67	8.72	5.49
September	0.00	4.64	5.56	1.68	5.69	7.81	1.83
October	0.00	4.59	5.50	4.46	5.81	6.16	4.61
November	0.00	4.04	5.11	4.93	5.29	4.89	4.31
December	0.00	4.13	5.09	5.13	5.51	5.30	4.81
Average	0.00	5.34	5.32	5.23	5.63	6.21	4.82
Total	0.00	64.12	63.82	62.75	67.60	74.56	57.86

**Table 7 (Continued)
TCSSD Culinary Water Production Volumes**

Month	2015 (MG)	2016 (MG)	2017 (MG)	2018 (MG)	2019 (MG)	2020 (MG)	2021 (MG)
JSSD Wholesale Water Purchases**							
January	--	0.00	0.00	0.60	0.02	1.36	1.57
February	--	0.00	0.00	0.60	0.02	0.69	0.93
March	--	0.00	2.91	0.60	0.00	1.03	1.29
April	--	0.00	0.22	0.60	0.01	3.54	2.23
May	--	0.00	0.69	0.60	0.02	6.53	9.22
June	--	3.12	5.30	6.03	0.07	7.97	11.96
July	--	0.00	4.89	7.77	0.19	10.57	11.24
August	--	0.00	6.04	8.05	3.93	11.30	8.62
September	--	16.14	3.42	6.36	4.79	9.51	7.91
October	--	0.00	1.46	2.02	4.79	4.82	2.23
November	--	0.00	0.59	0.40	1.22	2.78	1.57
December	--	0.00	0.00	0.17	0.34	1.62	0.95
Average	NA	1.60	2.13	2.82	1.28	5.14	4.98
Total	NA	19.25	25.51	33.81	15.41	61.71	59.72
Total TCSSD Culinary Water Production							
Total	NA	83.38	89.33	96.56	83.01	138.78	119.96

* No data available from Billy Bethers Spring until 2020

** No data available 2015 from TCSSD WTP or JSSD purchases

**Table 8
TCSSD Secondary Water Delivery Volumes¹**

Year	Jan (MG)	Feb (MG)	Mar (MG)	Apr (MG)	May (MG)	Jun (MG)	Jul (MG)	Aug (MG)	Sep (MG)	Oct (MG)	Nov (MG)	Dec (MG)
Secondary Deliveries (Supplied by LCIC and TIC)												
2021	--	--	--	0.04	24.41	34.96	34.83	26.45	26.08	0.60	0.00	0.00
TOTAL ANNUAL SECONDARY PRODUCTION									147.37 MG			

¹ Volumes reported are LCIC and TIC combined deliveries, as reported by the DWRi. Production data is not available for secondary water.

WATER PRODUCTION, SALES, AND SYSTEM LOSS

Historic Water Use

Historic population and water use from 2017 to 2021 is summarized in Table 9 and Table 10 below. Table 9 includes both water production (water produced by each source and delivered to the system) and water sales (metered use of the system) for the culinary system. The system loss and per capita water use has also been calculated. Table 10 includes only the water sales for the TCSSD secondary system. As mentioned earlier, TCSSD purchases water from LCIC and TIC, and therefore does not have access to secondary production data.

Data for these tables comes from the production records and water sales records provided to the public by the Division of Water Rights (DWRi). For population data, the historic billing data was reviewed and an average household size was estimated (based on 2020 Wasatch County census data) to provide a more accurate population estimate than was originally provided to DWRi. The District will submit a request to correct the DWRi population data.

**Table 9
Historic Per Capita Water Culinary Production, Sales, and System Loss**

Year	TCSSD Population	Historic Water Production (acre-ft)	Per Capita Production (gpcd)	Historic Water Sales (acre-ft)	Per Capita Water Use (gpcd)	System Loss (acre-ft)	System Loss (%)
2017	2,537	274.2	96.5	187.2	65.9	87.0	31.7%
2018	3,358	296.3	78.8	229.2	60.9	67.1	22.6%
2019	3,635	254.7	62.6	239.0	58.7	15.7	6.2%
2020	3,737	425.8	101.7	342.8	81.9	83.1	19.5%
2021	4,035	380.1	84.1	330.2	73.1	50.0	13.1%

**Table 10
Historic Per Capita Water Secondary Sales**

Year	TCSSD Secondary Population	Historic Water Sales * (acre-ft)	Per Capita Water Use (gpcd)
2017	1035	412.9	356.1
2018	1050	414.5	352.6
2019	1091	426.5	349.1
2020	1074	416.0	345.7
2021	1180	452.3	342.2

* Use data was only available for 2021. Historic water sales for 2017-2020 has been estimated using the 2021 data and assuming that District achieved an approximately 1% reduction in per capita water use each year.

Historic Per Capita Water Use

As summarized in Tables 9 and 10, the historic per capita culinary and secondary water sales range from 58.7 to 81.9 gpcd, and 342.2 to 356.1 gpcd, respectively. When combined, the per capita use

ranges from 407.8 gpcd in 2019 to 427.5 gpcd in 2020. These historic trends are illustrated in Figure 4. As can be seen, TCSSD gpcd water use numbers are significantly higher than average use in the Provo Region (per State of Utah Regional Conservation Goals). This is not unexpected as the District has much lower than average population density and correspondingly much larger property parcels. While indoor use appears to be consistent with regional averages, outdoor use is much higher as a result of the larger lot sizes.

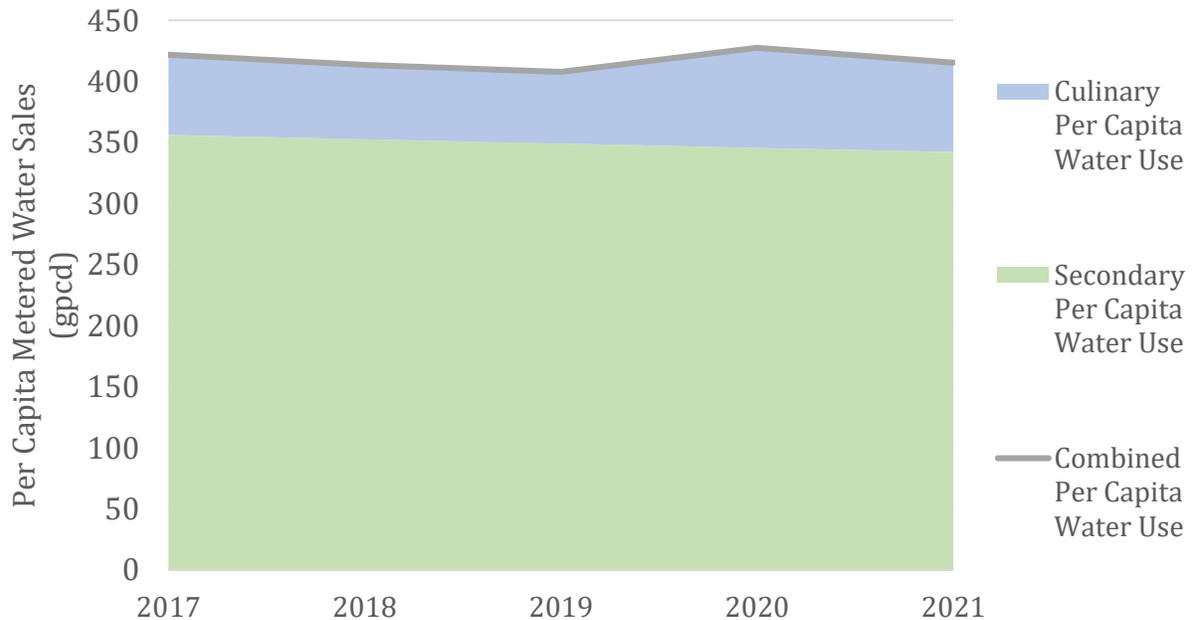


Figure 4. Historic Per Capita Water Demand

Current Per Capita Water Use

An analysis of TCSSD’s current municipal and industrial water use was completed. Water use by type for the year 2021 is summarized in Table 11. Per capita water use for the year 2021 was estimated using the approximate population of 4,035 culinary users and 1,180 secondary users. Culinary and secondary usage data for 2021 was obtained from the DWRi. For simplicity of this analysis, and due to a lack of recent billing data, it was assumed that all culinary water was used for indoor purposes. Though Red Ledges uses some culinary water for irrigation, it was assumed to be a minimal volume when considering all annual culinary water use across the district. Outdoor water use was assumed to be all secondary water. No data was available for commercial or institutional outdoor water use, as TCSSD does not provide secondary water to these locations.

Table 11
Current Per Capita Water Use by Type

User Type	Indoor Use (gpcd)	Outdoor Use* (gpcd)	Total Use (gpcd)
Residential	70.9	342.2	413.1
Commercial	0.8	0.0	0.8
Institutional	1.4	0.0	1.4
Total	73.1	342.2	415.3

*TCSSD does not provide secondary water services to any commercial or institutional users, therefore the secondary (outdoor) use in 2021 for these user types is 0 gpcd.

System Losses

Over the last five years, average system losses in the TCSSD culinary water system have been approximately 18.6 percent of annual water production. The District currently has a team of staff which meet regularly to audit water use, verify and improve their data, and identify causes of water loss. See “Conservation Practices” for further discussion of the District’s efforts to minimize system losses, including prevention activities and activities to locate and eliminate losses.

DISTRICT CONSERVATION GOAL WITH MILESTONES

Historical culinary usage data for the years 2008 through 2016 were deemed unreliable. Therefore, 2017 data (in gpcd) was used to back-calculate 2015 usage assuming a 1% annual reduction in per capita water use (which was the state goal in 2015 and 2016). Based on these assumptions, the average daily culinary demand per ERU in 2015 was 163.3 gallons, which equates to approximately 67.2 gallons per capita per day (gpcd) based on estimated populations using ERU data from the Utah DWRI.

Due to a lack of universal secondary metering until 2021, the 2015 usage volumes were not available. In order to have a baseline for conservation goals, a secondary use estimate was back-calculated from 2021 by assuming that secondary water use was reduced each year by 1% per capita from the previous year’s usage (as per the state-wide goal at the time). Based on this assumption, 2015 secondary water use would have been 363.3 gpcd.

State-driven conservation goals are for all water usage – secondary and culinary. Therefore, goals stated in this plan will use the combined year 2015 baseline usage of 430.5 gpcd. The selection of conservation goals for the District is driven primarily by the recommended regional goal published by the state of Utah and reinforced by analysis of future source reliability with conservation. This is because the District expects significant growth between now and buildout. This future development will require much larger water supply than is currently needed in the District. While demands will grow, additional new sources are limited, making conservation vital to the success of the community. The current Provo River and TCSSD-specific conservation goals are summarized in Table 12.

Table 12
Provo River Regional and TCSSD Conservation Goals

Year	State Conservation Goal (% Reduction from 2015)	TCSSD Per Capita Water Use Goals (gpcd)
2015	0%	431
2030	20%	344
2040	27%	314
2065	32%	293

The analysis of District supplies (described later in this plan), shows that if the District can achieve the level of conservation represented by the State conservation goal, their existing culinary sources will have enough capacity for the projected buildout condition through 2065. Therefore, the District has elected to establish its conservation goal to be identical to the State's conservation goal through 2065.

The conservation goals presented here are broken into individual culinary and secondary conservation as an example of how the overall conservation goals could reasonably be achieved. However, the overall water use reductions are the goals TCSSD is tracking.

Table 13 below shows the per capita use conservation goal milestones for the District through 2065. These conservation goals are illustrated in Figure 5, which also shows relevant historical data. As shown in the figure, the District's recent use has been higher than the projected goals. However, with continued conservation efforts, it is believed the District still can reach its goal by 2030.

**Table 13
District Conservation Goal with Milestones Through 2065**

Year	Culinary		Secondary		Overall		
	Reduction from 2015	Conservation Goal Milestones	Reduction from 2015	Conservation Goal Milestones	Total Reduction from 2015	Conservation Goal Milestones	Actual Usage
		(gpcd)		(gpcd)		(gpcd)	
2015	0.0%	67.2	0.0%	363.3	0.0%	430.5	430.5
2020	2.0%	65.9	2.8%	353.3	4.8%	419.2	427.5
2021	4.0%	64.5	5.5%	343.3	9.5%	407.8	415.3
2025	6.0%	63.2	8.3%	333.3	14.3%	396.5	--
2030	7.7%	62.0	11.3%	322.4	19.0%	384.4	--
2035	9.9%	60.6	25.8%	269.4	130.5%	330.0	--
2040	11.8%	59.3	29.8%	255.0	137.0%	314.3	--
2045	13.5%	58.1	33.4%	241.9	143.5%	300.0	--
2050	15.0%	57.1	34.4%	238.4	145.7%	295.5	--
2055	16.3%	56.3	34.7%	237.3	146.6%	293.6	--
2060	17.3%	55.6	34.6%	237.4	146.9%	293.0	--
2065	18.2%	55.0	34.6%	237.7	52.7%	292.7	--

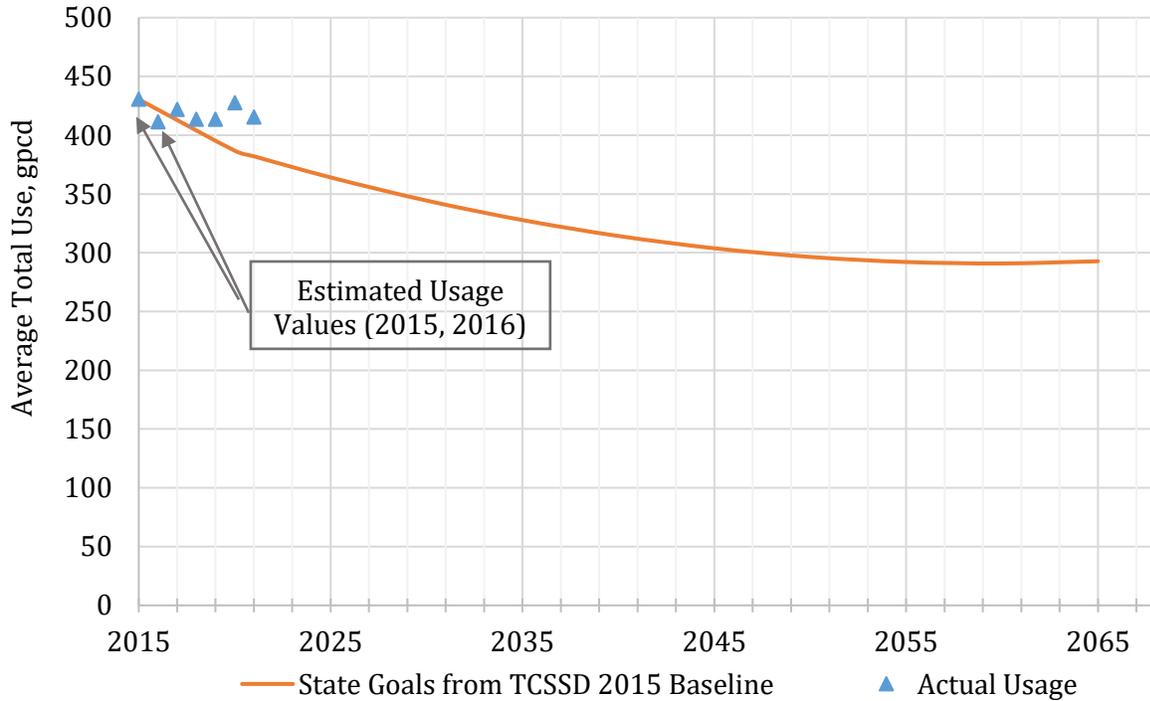


Figure 5. Conservation Goals vs Actual Usage

WATER CONSERVATION PRACTICES

Measuring Savings from Conservation

To track how well TCSSD is achieving its conservation goal each year, the District will estimate per capita water demands based on:

- Yearly production data from
 - TCSSD WTP,
 - Water deliveries from JSSD,
 - Billy Bethers Spring,
 - Secondary water deliveries from LCIC and TIC, and
- Updated population estimates.

Current Conservation Measures

Twin Creeks is a relatively young water service district but has already implemented a few important water conservation measures. These are listed below and organized by the following conservation categories:

- Conservation Public Awareness Practices
- Education and Training Practices
- Rebates, Incentives, and Rewards
- Ordinances and Standards
- Water Pricing
- Improvements to Physical System

Conservation Public Awareness Practices:

- **Universal Culinary Water Meters** – All residential, commercial, and institutional connections to the District’s water system are metered. The District also meters water that is used in public areas such as parks and streetscapes.
- **Universal Secondary Water Meters** – The District has installed meters in 100% of secondary customers serviced and billed by TCSSD.
- **Water Conservation Report** – The District updated its previous conservation plan in 2018.
- **Consumer Confidence report** - As part of its annual Consumer Confidence Report sent to all customers, the District includes materials encouraging water conservation habits.
- **Drought Letters** – As a part of its typical operation, TCSSD sends out letters in the spring discussing the outlook of the year’s water supply and therein encourages conservation.
- **Water Shortage and Drought Plan** – TCSSD completed a detailed water shortage and drought plan for the Lake Creek drainage area (about half of the TCSSD service area). This plan will include specific drought stages along with triggers and responses for each, which target drought responses and allow for timely action when drought conditions exist.
- **Mandatory AMI Portal Sign Up for Leak Forgiveness** – TCSSD requires those who seek forgiveness on leaks to be signed up for the Customer Water Usage Portal to be eligible for reimbursement.

Education & Training Practices:

- **Conservation Links on the District Website**
 - **Important Water Conservation** – A link to “Water Conservation 2022 Reminders & Resources.” This document reminds the TCSSD customers that as of April of this year, Gov. Cox declared a state of emergency due to drought conditions. It encourages users to conserve secondary irrigation and lists resources
 - **Watering Recommendations** – A link to “Slow the Flow” tools and resources tab. This outlines more ways for customers to save and allows them to research rebates they are eligible for.
 - **Weekly Lawn Watering Guide** – A link to the Utah Department of Natural Resources guidelines to how to water your lawn efficiently during the hottest days of the year.
 - **Customer Water Usage Portal** – A link to the customer AMI portal that the District provides. The customer portal allows customers to view actual water usage with real-time data for both their culinary and/or irrigation meter.

As of 2022, 180 of 1,654 (11%) customers in TCSSD are registered on the portal.

Ordinances & Standards:

TCSSD as a service district does not control land use policy. However, the land use authority for the vast majority of TCSSD’s customers, Wasatch County, does have ordinances which promote conservation in new development as follows.

- **Ordinance 5.6.7: Native Plants/Native-Like Plants** - Native landscapes and vegetation areas that reflect the indigenous plant materials and landscape textures are envisioned. Native landscape species consist primarily of drought tolerant plants. Plants in wet areas shall be consistent with native species in these types of plant associations. The plant materials should thrive with very little or no irrigation, except during the period of initial establishment. All native landscape plants should be carefully planted due to the high mortality rate for these species. Plants that are "native-like" are species that may be indigenous but not endemic to the area. The use of the indigenous species or other more recent introduced species that mimic native plants is acceptable. Transplanting existing plants on the site is encouraged.
- **Ordinance 5.6.8: Turf Meadow and Wildflowers** - Where turf areas are necessary, a turf grass blend should be chosen that is durable to traffic and drought tolerant. It is required that irrigation accompanies turf areas, and it is mandatory for irrigation systems to be installed with turf that is laid over slab.
- **Ordinance 5.6.9.1 Minimize Lawn Areas** - Lawn areas should be kept to a minimum within the JSPA. An appropriate use of turf is to scale the lawn to the surrounding area and use. Some common public spaces are intended as park-like settings.

Water Pricing:

- **Increasing Culinary Water Block Schedule** – TCSSD currently structures its Water Rate schedule that customers that have higher water usage pay more for water via its overage charges.
- **Increasing Secondary Water Block Schedule** – Currently has a graduated increasing rate schedule to encourage conservation with irrigation.

Improvements to Physical System:

- **AMR to AMI Project** – From 2019 to 2021, the District converted their metering system to an AMI system. This allows the district to better collect data, as well as have this data readily available to the consumers.

New Conservation Practices Planned for Implementation

There are several new conservation practices that the District has either recently started to implement or will implement in the next five years. The following sections describe each conservation practice and Table 14 summarizes the implementation schedule, estimated costs, and measurement of progress for each practice.

Conservation Public Awareness Practices:

- **Water Shortage and Drought Plan** – Complete a detailed water shortage and drought plan for the Upper Provo drainage area by 2024. This plan will include specific drought stages along with triggers and responses for each. This will target drought responses and allow for timely action when drought conditions exist.
- **Update Conservation Report** – Update existing TCSSD conservation plan regularly to capture new data, reflect additional growth, and check in on conservation practices/goals.

Education & Training Practices:

- **Assign TCSSD Staff Member Conservation Tasks** – Assign a TCSSD staff member to act as a Water Conservation Education Coordinator that ensures that the public/stakeholder education and engagement for water conservation as identified in this plan are sent out (mailers) and kept up to date (website).
- **Backflow Preventor Lead Training** - Train back flow preventor lead operator to identify outdoor water waste and report it to the District so corrective action can be taken (e.g. sprinklers watering concrete, etc.)
- **Educate Users on the Water Usage Portal** – Include educational inserts in mailed bills to inform how to access to the portal and what information it has. TCSSD will set a goal to increase the percentage of customers registered for the portal in the next 5 years.

Rebates, Incentives & Rewards:

- **Educate Consumers on CUWCD Rebates** – Central Utah Water Conservancy District (CUWCD) offers rebate programs that residents in Wasatch County can participate in.
 - **Smart Controller Rebates** – Receive a rebate for up to \$75 when you purchase an eligible WaterSense labeled smart controller. Smart controllers reduce water waste by automatically adjusting how often and how long a landscape is watered based on local weather and landscape conditions.
 - **Flip Your Strip** – Park strips are known to be one of the most challenging portions of any landscape to maintain. Central Utah Water now offers rebates of up to \$1.25/sq ft to homeowners who convert their current lawn filled park strip to a water efficient design. “Flipped” park strips can save an estimated at 5,000-8,000 gallons every year.

- **Localscapes Rewards** – Localscapes is an approach to landscaping designed specifically for Utah. Plus, you could qualify for cash rewards and a free review of your Localscapes landscape plan.
- **Toilet Replacement** – Receive up to \$100 when you replace your old toilet with a WaterSense labeled toilet! Toilets use more water than any other indoor fixture. Because toilets manufactured before 1994 use more gallons of water per flush, replacing them is an easy way to conserve water.

Water Pricing:

- **Evaluate Current Water Rate Structure to Further Incentivize Conservation** – Within the next 2 years, the District will complete a rate study to identify potential modifications to its current rates structure that encourage reductions in excessive water use and further incentivize conservation. For culinary, this will likely be more graduated increasing block rate structure than what they have now. Results of the review will be presented to the TCSSD board for consideration.

Improvements to Physical System:

- **Participate in AWWA Water Audit Program** – This program helps water suppliers quantify system water loss and associated revenue losses. This will be the natural progression of the District's existing internal auditing. The District will participate in at least one water audit by 2025.

**Table 14
Implementation, Schedule, Estimated Costs & Measurement of Progress**

New Conservation Practices	Implementation Timeline	Estimated Cost	Measurement of Progress
Water Shortage and Drought Plan	Complete by 2024	\$20,000	Completion of report with associated recommendations
Update Water Conservation Plan	Complete by 2022	\$8,300	Completion of report
Assign TCSSD Staff Member Conservation Tasks	Complete by 2025	Varies	Complete the associated tasks (See New Conservation Practices)
Backflow Preventor Lead Training	Complete by 2023	Varies	Create training program for TCSSD system operators
Educate Consumers on CUWCD Rebates	Begin in 2023	Varies	Educate TCSSD consumers on the rebate programs available to them
Educate Consumers on Water Usage Portal	Begin in 2023	Varies	Raise portal registration from 11% to 15%
Evaluate Current Water Rate Structure to Further Incentivize Conservation	Complete in 2022	\$10,000	Completion of report with associated recommendations
Participate in AWWA Water Audit Program	Complete by 2025	\$5,000/year	Completed audit score and record

WATER CONSERVATION PLAN AUTHOR(S)

This plan was prepared by Bowen Collins & Associates at our Draper office:

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Primary authors of the plan are:

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**PUBLIC HEARING
NOVEMBER 8, 2022**

WATER RESERVATION RATE INCREASE.

Justin Dietrich, from Bowen Collins, presented a power point presentation and then indicted that as of the effective date of this resolution, the annual fee charged for any water reservation agreement executed by the district shall be \$555.03 per acre foot of water so reserved. This annual rate shall remain effective until the district, pursuant to Section 5 of Resolution 2022-04 revised such annual fee.

Public Comment:

Board Vice Chair Spencer Park then opened the matter up for public comment and there was none, so the public comment period was closed.

Motion:

Board Member Marilyn Crittenden made a motion to approve Resolution 2022-04 as has been presented this evening. Board Member Steve Farrell seconded the motion, and the motion carries with the following vote:

**AYE: Board Vice Chair Spencer Park
AYE: Board Member Steve Farrell
AYE: Board Member Mark Nelson
AYE: Board Member Marilyn Crittenden
AYE: Board Member Kendall Crittenden**

NAY: None.

ADJOURNMENT

Board Kendall Crittenden made a motion to adjourn. Board Member Marilyn Crittenden seconded the motion, and the motion carries with the following vote:

**AYE: Board Vice Chair Spencer Park
AYE: Board Member Marilyn Crittenden
AYE: Board Member Mark Nelson
AYE: Board Member Kendall Crittenden
AYE: Board Member Steve Farrell**

NAY: None.

Meeting adjourned at 5:50 p.m.

SPENCER PARK/BOARD VICE CHAIR

**MINUTES OF THE WASATCH COUNTY COUNCIL
ACTING AS
THE GOVERNING BOARD OF THE TWIN CREEKS
SPECIAL SERVICE DISTRICT
NOVEMBER 8, 2022**

PRESENT: Board Vice Chair Spencer Park
Board Member Marilyn Crittenden
Board Member Kendall Crittenden
Board Member Steve Farrell
Board Member Mark Nelson

EXCUSED, Board Member Danny Goode
Board Chair Jeff Wade

STAFF: Max Covey, General Manager
Theresa Baronek, District Treasurer
Dana Kohler, Administrative Assistant
Doug Scow, Water Rights Manager
Kierstan Smith, CPA
Chance Morris, Distribution/Collections Manager
Wade Webster, Keetley Water Treatment Plant Manager
David Fuller, Project Coordinator
Shari Coleman, Accounting Clerk
Terese Robins, District Treasurer
Rick Tatton, Court Reporter via Zoom

Board Vice Chair Spencer Park called the meeting to order at 5:30 p.m. on Tuesday, November 8, 2022. The record should show that all the Governing Board Members of the Twin Creeks Special Service District are present except for Board Member Danny Goode and Board Chair Jeff Wade. Board Chair Spencer Park indicated that the Governing Board of the Twin Creeks Special Service District is meeting in the Wasatch County Senior Center Classroom in the Wasatch County Library Building located at 465 E 1200 S, Heber City, Utah 84032. Board Vice Chair Spencer Park then called the first agenda matter.

REGULAR SESSION

APPROVAL OF THE MINUTES FOR OCTOBER 11, 2022, MEETING

Board Member Mark Nelson made a motion to approve the minutes for the October 11, 2022, meeting as presented. Board Member Marilyn Crittenden seconded the motion, and

the motion carries with the following vote:

**AYE: Board Vice Chair Spencer Park
AYE: Board Member Marilyn Crittenden
AYE: Board Member Mark Nelson
AYE: Board Member Kendall Crittenden**

NAY: None.

ABSTAIN: Board Member Steve Farrell (absent)

WARRANT LIST APPROVAL

Board Member Steve Farrell made a motion to approve the warrants in the amount of \$267,044.85. Board Member Kendall Crittenden seconded the motion, and the motion carries with the following vote:

**AYE: Board Vice Chair Spencer Park
AYE: Board Member Marilyn Crittenden
AYE: Board Member Mark Nelson
AYE: Board Member Kendall Crittenden
AYE: Board Member Steve Farrell**

NAY: None.

PRELIMINARY BUDGET/SET PUBLIC HEARING FOR BUDGETS.

Kierstan Smith, CPA, addressed the Governing Board of the Twin Creeks Special Service District and presented the preliminary budgets to the Governing Board. **Board Member Kendall Crittenden made a motion to approve the proposed preliminary and amended budgets and set the budget public hearing for December 13, 2022, at 6:00 p.m. Board Member Mark Nelson seconded the motion, and the motion carries with the following vote:**

**AYE: Board Vice Chair Spencer Park
AYE: Board Member Marilyn Crittenden
AYE: Board Member Kendall Crittenden
AYE: Board Member Steve Farrell
AYE: Board Member Mark Nelson**

NAY: None.

QUARTERLY FINANCIAL REPORT

Kierstan Smith, CPA, addressed the Governing Board of the Twin Creeks Special Service District and indicated the following:

Account 11100 this balance \$500,000 will be transferred in October.

Account 11250 this PTIF account holds both restricted and unrestricted cash.

Account 11300 impact fees have been used to make the debt service payments for the revenue bonds and for costs associated with the update of rate studies and master plans.

Accounts 16400 and 16700 is about \$1.4 million in infrastructure was contributed to the district in 2021.

Account 26230 in addition to the regular Red Ledges SAF 2015 bond debt service payment and has been called as far this year.

Account 31025 the lots within the Red Ledges Development are assessed their water reservation fee in January.

Account 32550 the district projected equalization fees based on anticipated growth which hasn't occurred in these areas.

Account 13000 Penalty Revenue consists of late fees on accounts.

Account 39300 the district is subleasing part of their metering tower capacity to a third party.

Account 50250 the district is billed in January for water they reserve with JSSD resulting in a large portion of the budgeted cost being spent in the first quarter of the year.

Account 72000 depreciation is expected to exceed the current budgeted amount due so additional contributed infrastructure recorded after the budget was adopted last December.

The district is experiencing a positive cash flow as of March 31 due in part to operating revenues exceeding related expenses. This is expected and necessary since excess operating cash inflows are needed to pay revenue bond obligations and for some capital purchases.

Board Member Kendall Crittenden made a motion to approve the Quarterly Financial Report as presented. Board Member Mark Nelson seconded the motion, and the motion carries with the following vote:

AYE: Board Vice Chair Spencer Park

AYE: Board Member Steve Farrell

AYE: Board Member Marilyn Crittenden

AYE: Board Member Kendall Crittenden

AYE: Board Member Mark Nelson

NAY: None.

WATER CONSERVATION PLAN

Dustin Dietrich, from Bowen Collins, addressed the Governing Board of the Twin Creeks Special Service District and indicated that his explanation would be the same as was done for the North Village Special Service District. **Board Member Steve Farrell made a motion to approve the Water Conservation Plan as has been presented. Board Member Marilyn Crittenden seconded the motion, and the motion carries with the following vote:**

AYE: Board Vice Chair Spencer Park

AYE: Board Member Marilyn Crittenden
AYE: Board Member Steve Farrell
AYE: Board Member Mark Nelson
AYE: Board Member Kendall Crittenden

NAY: None.

GENERAL MANAGER'S REPORT

Max Covey, General Manager, addressed the Governing Board of the Twin Creeks Special Service District and indicated that he has nothing to report other than everything is progressing the way it should be.

OTHER BUSINESS

Max Covey, General Manager, addressed the Governing Board of the Twin Creeks Special Service District and the Governing Board of the Twin Creeks Special Service District both indicating that they had no other business.

**TWIN CREEKS SPECIAL SERVICE DISTRICT
WATER CONSERVATION PLAN
RESOLUTION NO. 2022-03**

RECITALS

WHEREAS, the Twin Creeks Special Service District (the “District”) is a special service district established by the County Legislative Body of Wasatch County, Utah, pursuant to the provisions of Utah law, for the purpose of providing culinary and irrigation water delivery services within the District’s boundaries; and

WHEREAS, Utah and surrounding states have been impacted by drought for several years, coupled with growth and development, all of which are expected to continue in years to come; and

WHEREAS, the State of Utah has enacted the Water Conservation Act, Utah Code Ann. § 75-10-32, which requires the District to create and implement a Water Conservation Plan; and

WHEREAS, the District engaged Bowen Collins & Associates (“BC&A”) to research the best practices and approaches to water conservation engaged in by other water suppliers and the District itself, and to recommend approaches to water conservation that would be appropriate in the District; and

WHEREAS, BC&A prepared a draft Water Conservation Plan; and

WHEREAS, the Board has reviewed and considered BC&A’s recommendations, and has determined that it is in the best interests of the District and its customers to adopt those recommendations.

NOW, THEREFORE, the Wasatch County Council, acting as the governing board of the District (the “Board”), hereby adopts the Water Conservation Plan attached hereto as Exhibit A.

Resolution 2022-03 Approved and adopted this 8th day of November, 2022

By: 

Vice District Board Chairman

Attest:

By: 
District Treasurer

